NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date:

Region: Winston-Salem Regional Office
County: Wilkes
NC Facility ID: 9700001
Inspector's Name: Robert Barker
Date of Last Inspection: 05/20/2015
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Louisiana-Pacific Corporation - Roaring River

Facility Address:
Louisiana-Pacific Corporation - Roaring River
1151 ABTCO Road
North Wilkesboro, NC 28659

SIC: 2493 / Reconstituted Wood Products
NAICS: 321219 / Reconstituted Wood Product Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: N/A
NSPS: N/A
NESHAP: N/A
PSD: N/A
PSD Avoidance: 02D .0530(u)
NC Toxics: N/A
112(r): N/A
Other: Update CAM and add an ESP on boiler ES-B3

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Butch Wilson Maintenance Supervisor (336) 625-2161 159 North Street Asheboro, NC 27203	Scott Cranston Plant Manager (336) 696-3483 PO Box 98 Roaring River, NC 28669	Tommy Johnson Facilities Maintenance Director (336) 625-2161 159 North Street Asheboro, NC 27203

Application Data

Application Number: 9700001.14A, 9700001.14B, 9700001.15A, 9700001.16A
Date Received: 05/16/2014, 10/20/2014, 01/12/2015, 02/19/2016
Application Type: Modifications
Application Schedule: Administrative Amendments, Re-open for cause, TV-Significant

Existing Permit Data

Existing Permit Number: 03909/T51
Existing Permit Issue Date: 06/11/2014
Existing Permit Expiration Date: 10/31/2017

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	4.36	185.51	297.91	673.78	54.85	163.28	77.81 [Methanol (methyl alcohol)]
2013	4.61	182.66	294.28	472.35	50.33	160.48	77.61 [Methanol (methyl alcohol)]
2012	6.43	159.63	262.59	397.44	44.85	140.93	65.92 [Methanol(methyl alcohol)]
2011	4.99	163.94	256.67	400.18	40.91	141.94	65.60 [Methanol (methyl alcohol)]
2010	28.17	177.88	250.62	405.63	42.95	154.52	70.32 [Methanol (methyl alcohol)]

Review Engineer: Betty Gatano

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 03909/T52
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

Louisiana Pacific Corporation (LP) currently holds Title V Permit No. 03909T51 with an expiration date of October 31, 2017 for an engineered wood products manufacturing facility in Roaring River, Wilkes County, North Carolina. Air Permit Application No. 9700001.16A for a significant modification under 15A NCAC 02Q .0501(c)(1) was received on February 19, 2016.

The following changes were requested as part of this modification:

- Replace the existing venturi scrubber (ID No. CD-4) on the boiler (ID No. ES-B3) with a dry electrostatic precipitator (ESP) (ID No. CD-4a). The permit will indicate that the boiler will be controlled by the venturi scrubber (ID No. CD-4) until initial startup of the ESP (ID No. CD-4a).
- Remove No. 6 fuel oil as a permitted fuel for all boilers at the facility.

LP had three other permit applications in-house when Air Permit Application No. 9700001.16A was received. Many of the changes proposed in the in-house applications are no longer necessary with the removal of No. 6 fuel oil from the permit and the replacement of the venturi scrubber (ID No. CD-4). Because this permit application affects the three in-house applications, they will be consolidated with Air Permit Application No. 9700001.16A and processed as part of this modification. A summary of the three in-house permit applications is provided below:

- Air Permit No. 9700001.14A – LP submitted a permit application for an administrative amendment to update the water injection rate for the scrubbers (ID Nos. CD-3 and CD-4) controlling the biomass/No. 6 fuel oil/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) based on April 2014 testing.
- Air Permit No. 9700001.14.B - The DAQ initiated a permit application under 15A NCAC 02Q .0517, "Reopen for Cause," to update the requirements under Compliance Assurance Monitoring for the biomass/No. 6 fuel oil/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3).
- Air Permit No. 9700001.15A – LP submitted a permit application for an administrative amendment to update the water injection rate for the venturi scrubber (ID No. CD-3) controlling the biomass/No. 6 fuel oil/natural gas-fired hybrid suspension grate type boiler (ID No. ES-B2) based on November 2014 testing.

2. Facility Description

LP owns and operates a hardboard siding production facility in Roaring River. The hardboard is manufactured by thermomechanically digesting wood chips, adding resin to form a pulp, pouring the pulp into molds, heating the molds under high pressure, baking the boards, and finally finishing the product. Five boilers, consisting of three primary boilers and two temporary/backup boilers, provide heat and steam for the manufacturing process. LP is also permitted for emergency generators, a wastewater treatment plant, and numerous insignificant activities.

3. History / Background / Application Chronology

January 29, 2014	The Winston-Salem Regional Office (WSRO) issued a Notice of Violation to LP for exceeding the BACT limit for particulate matter on a boiler (ID No. ES-B3). The violation was documented during engineering testing on the boiler during November 2013 while firing sander dust in the boiler.

April 1-2, 2014	LP conducted carbon monoxide (CO) and particulate matter (PM) testing for its boilers (ID Nos. ES-B2 and ES-B3) for compliance with the Case-by-Case MACT. No sander dust was fired during testing. Steam loads for the boilers and water injection rates for the scrubbers (ID Nos. CD-2 and CD-4) were also established during the testing.
May 16, 2014	Air Permit Application No. 9700001.14A was received for an administrative amendment.
May 18, 2014	Sent acknowledgment letter indicating the application was complete.
June 25, 2014	DAQ issued Applicability Determination No. 2460 to LP, allowing the facility to make modifications to the venturi scrubber (ID No. CD-4) on boiler ES-B3 to address noncompliance when burning sander dust. The proposed changes included increasing the scrubber surface area with additional chevrons and demisters and increasing the scrubber flow in an effort to improve particulate control. No permit was needed for these changes.
July 15, 2014	Roy Hart from LP sent a letter to Samir Parehk of the Stationary Source Compliance Branch (SSCB) regarding proposed changes to the Compliance Assurance Monitoring (CAM) applicability and monitoring for boilers (ID Nos. ES-B2 and ES-B3).
July 30, 2014	Mr. Parekh received an email from Mr. Hart of LP justifying the proposed changes to CAM applicability and the CAM permit conditions.
July 31, 2014	Mr. Parekh sent an e-mail to Charlie Yirka of the Permitting Section recommending specific changes to CAM applicability and monitoring.
August 11, 2014	DAQ issued a "Deferral of Enforcement" (DOE) letter to LP. The deferral was for testing boiler ES-B3 while combusting sander dust in the supplemental dust scroll burner for a period not to exceed twenty-four hours. LP anticipated completing the testing during the week of September 1, 2014.
August 20, 2014	DAQ issued a letter to LP indicating the permit would be reopened for cause for the purposes of revising the CAM conditions after the required 60-day notice.
October 2, 2014	DAQ received a letter from LP requesting deferral of enforcement for additional testing on boiler ES-B3 while firing sander dust.
October 20, 2014	The 60-day, reopen for cause, notification period ended. The DAQ created Application No. 9700001.14B to reopen the permit to address changes to CAM.
October 22, 2014	LP sent a letter to DAQ indicating a series of tests was performed while burning sander dust on September 3 and 4, 2014.
November 3, 2014	DAQ issued a DOE letter to LP. The deferral was for testing boiler ES-B3 while combusting sander dust in the supplemental dust scroll burner for a

	period not to exceed twenty-four hours. LP anticipated completing the testing during the week of November 17, 2014.
November 12, 2014	James Hammond of the SSCB issued a memorandum approving stack testing performed on boilers ES-B2 on ES-B3 on April 1 and 2, 2014. Compliance was indicated.
November 19, 2014	LP conducted CO and PM testing on boiler ES-B2 for compliance with the Case-by-Case MACT. Steam loads for the boiler and water injection rate for the fan impingement type scrubber (ID No. CD-2) were also established during the testing.
November 21, 2014	Mr. Hammond sent an e-mail to Mr. Hart requesting additional information regarding fuel sampling for mercury and hydrogen chloride.
November 24, 2014	A draft permit and review was provided to the Mark Cuilla, Permitting Supervisor, for comment. Mr. Cuilla suggested the issuance of the permit be delayed until the testing issues were resolved.
December 3, 2014	James Hammond of the SSCB issued a memorandum approving mercury and hydrogen chloride fuel sampling of boiler fuel as required by the Case-by-Case MACT.
January 12, 2015	Air Permit Application No. 9700001.15A was received for an administrative amendment.
January 16, 2015	Sent acknowledgment letter indicating the application was complete.
April 22, 2015	LP submitted a letter indicating elevated zinc levels may be causing particulate matter exceedances when firing sander dust in boiler ES-B3.
May 5, 2015	DAQ issued a DOE letter to LP. The deferral was for testing boiler ES-B3 while combusting sander dust in the supplemental dust scroll burner for a period not to exceed forty-eight hours. LP anticipated completing the testing during the week of May 18, 2015.
June 18, 2015	LP sent an e-mail to Michael Pjetraj, Supervisor of the SSCB, providing additional information regarding the testing while firing sander dust in boiler ES-B3 during the periods of enforcement deferral.
June 30, 2015	DAQ issued a DOE letter to LP. The deferral was for testing boiler ES-B3 while combusting sander dust in the supplemental dust scroll burner for a period not to exceed forty-eight hours. LP anticipated completing the testing during the week of July 20, 2015.
October 28, 2015	Gary Saunders of the SSCB issued a memorandum approving stack testing performed on boilers ES-B2 on November 19, 2014. Compliance was indicated.

February 19, 2016	Air Permit Application No. 9700001.16A was received to replace the venturi scrubber (ID No. CD-4) on boiler ES-B3 with an ESP and to remove No. 6 fuel oil as permitted fuel at the facility.
February 23, 2016	Sent acknowledgment letter indicating the application was complete.
March 10, 2016	Robert Barker of the WSRO provided comments on Air Permit Application No. 9700001.16A.
March 31, 2016	Betty Gatano, Mark Cuilla, and Ray Stewart of the DAQ participated in a phone call with Roy Hart and Phil Ferguson of LP and Amy Marshall of AECOM to discuss the status of permit Application No. 9100007.16A.
April 12, 2016	Air Permit Nos. 9700001.14A, 14B, and 15A were reassigned to Betty Gatano. Because many of the changes requested by these permits are no longer relevant with the removal of No. 6 fuel oil and the venturi scrubber (ID No. CD-4), the permit applications were consolidated with Air Permit No. 9700001.16A. It should be noted Charlie Yirka of the DAQ's Permitting Section had completed a draft permit and permit review for these applications.
April 14, 2016	Received comments from Samir Parekh on the CAM plan for the ESP submitted with Permit Application No. 9700001.16A.
April 20, 2016	Betty Gatano discussed the sander dust issues with Roy Hart via phone call.
April 28, 2016	Draft permit and permit review forwarded for comments.
April 29, 2016	Received comments from Robert Barker of the WSRO.
May 2, 2016	Received comments from Mark Cuilla, Permitting Supervisor.
May 3, 2016	Received comments from Samir Parekh of the SSCB.
May 4, 2016	Received comments from Roy Hart of LP.
May 6, 2016	Second draft of permit and permit review forwarded for comments.
May 9, 2016	Received comments from Mark Cuilla, Permitting Supervisor.
May 11, 2016	Received comments from Roy Hart of LP.
May 13, 2016	Draft permit and permit review sent to public notice.

4. Permit Modifications/Changes and TVEE Discussion

The following table describes the changes to the current permit under this permit modification.

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
Cover and throughout	--	Cover and throughout	--	Updated all dates and permit revision numbers.
--	Insignificant Activities List	--	Insignificant Activities List	• Removed glue tank (ID No. IES-LP-IT-8). • Removed two No. 6 fuel oil storage tanks (ID Nos. IES-FT.A and IES-FT.B). • Removed two No. 6 fuel oil tanks (ID Nos. IES-FT1 and IES-FT2).
3 – 6	1.0 – Equipment List	3 – 6	1.0 – Equipment List	• Added a shake line to the woodworking equipment (ID No. ES-4). • Revised the description of lap coating line (ID No. ES-LL). • Removed No. 6 fuel oil as a permitted fuel for boilers (ID Nos. ES-B1, ES-B2, and ES-B3). • Updated the water injection rate for the fan impingement type scrubber (ID No. CD-2) to 104.4 gallons per minute, as measured in stack test on November 19, 2014. • Added asterisk and footnote for the venturi scrubber (ID No. CD-4) on the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3) specifying that it will control the boiler until the initial startup of the electrostatic precipitator (ID No. CD-4a). • Added an electrostatic precipitator (ID No. CD-4a) as control for the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3). • Removed asterisks from permitted equipment. The asterisks pertained to footnotes that were removed when the permit was renewed under Air Permit No. 03909T49 issued on November 13, 2012.
7	2.1.A – Regulations Table	7	2.1.A – Regulations Table	Changed the reference to 15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes" to 15A NCAC 02D .0512, "Particulates from Wood Products Finishing Plants." This rule is applicable to "particulate matter caused by the ***working***, sanding, or finishing of wood to be discharged from any stack, vent, or building into the atmosphere…"
7	2.1.A.1	7	2.1.A. 1	Changed the regulations to 15A NCAC 02D .0512, "Particulates from Wood Products Finishing Plants." The monitoring, recordkeeping, and reporting requirements under this rule are the same as under 15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes."

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
9 – 10	2.1.B – Regulations Table	9	2.1.B – Regulations Table	• Removed reference to 15A NCAC 02Q .0705. This rule was repealed on May 1, 2014. • Changed the term "State Only Requirement" to "State Enforceable Only."
11 – 14	2.1.B.2.b through f	11 – 13	2.1.B.2.b through h.	Renumbered these sections to make them consistent with remainder of the permit.
15	2.1.C.1.c	14	2.1.C.1.c	Added noncompliance statement.
16	2.1.C.2.d	15	2.1.C.2.d	Added noncompliance statement.
16 – 17	2.1.D – Regulations Table	15	2.1.D – Regulations Table	• Removed reference to 15A NCAC 02Q .0705. This rule was repealed on May 1, 2014. • Changed the term "State Only Requirement" to "State Enforceable Only."
18	2.1.D.4.b	17	2.1.D.4.b	Added noncompliance statement.
18 – 19	2.1.E – Equipment List	17	2.1.E – Equipment List	• Removed No. 6 fuel oil as a permitted fuel for boilers (ID Nos. ES-B1, ES-B2, and ES-B3). • Added asterisk and footnote for the venturi scrubber (ID No. CD-4) on the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3) specifying that it will control the boiler until the initial startup of the electrostatic precipitator (ID No. CD-4a). • Added an electrostatic precipitator (ID No. CD-4a) as control for the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3).
19 – 21	2.1.E – Regulations Table	17 – 18	2.1.E – Regulations Table	• Removed requirements when firing No. 6 fuel oil under 15A NCAC 02D .0501(e). • Updated the Alternative Operating Scenario for boilers (ID Nos. ES-B2 and ES-B3). • Removed reference to 15A NCAC 02D .0504 for firing both No. 6 fuel oil and biomass. • Removed the term "superseded" from the limit for 15A NCAC 02D .0516. • Removed emission limits for firing No. 6 fuel oil for boilers (ID Nos. ES-B1, ES-B2, and ES-B3) under 15A NCAC 02D .1109, Case-by-Case MACT. • Removed requirements for monitoring sulfur dioxide under CAM and removed No. 6 fuel oil from boiler descriptions.
21 – 22	2.1.E.1	18 – 19	2.1.E.1	Revised permit condition to remove all requirements associated with firing No. 6 fuel oil in boilers (ID Nos. ES-B1, ES-B2, and ES-B3).

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
22	2.1.E.2	19	2.1.E.2	• Updated emission limit to 0.25 pounds per million Btu. • Revised permit condition for 15A NCAC 02D .0503 to remove all requirements associated with firing No. 6 fuel oil in boilers (ID Nos. ES-B1, ES-B2, and ES-B3). No monitoring, recordkeeping, or reporting is required for firing natural gas in these boilers.
23	2.1.E.3.b	19	2.1.E.3.b	Updated testing condition with most current language.
23	2.1.E.3.c	19	2.1.E.3.c	• Added asterisk and footnote for the venturi scrubber (ID No. CD-4) on the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3) specifying that it will control the boiler until the initial startup of the electrostatic precipitator (ID No. CD-4a). • Added requirements for electrostatic precipitator (ID No. CD-4a) and associated monitoring requirements.
23	2.1.E.3.e	19	2.1.E.3.e	Add requirement to maintain any maintenance performed on the scrubbers (ID No. CD-2 and CD-4) or the electrostatic precipitator (ID No. CD-4a).
23	2.1.E.4	--	--	• Removed requirement under 15A NCAC 02D .0504 for co-firing No. 6 fuel oil and biomass in boilers (ID Nos. ES-B2 and ES-B3). • Renumbered the remainder of the section accordingly.
23 – 24	2.1.E.5	20	2.1.E.4	Updated permit condition for 15A NCAC 02D .0516 to remove references to No. 6 fuel oil. No monitoring, recordkeeping, or reporting is required for firing natural gas or biomass in these boilers.
24	2.1.E.6.d	20	2.1.E.5.d	Added requirement to establish normal visible emissions within the first 30 days of the initial startup of boiler **(ID No. ES-B3)** with associated multicyclone **(ID No. CD-3)** and electrostatic precipitator **(ID No. CD-4a**).
25	2.1.E.7.d	21	2.1.E.6.d	Removed parenthetical statement, "(The SO_2 limitation for ambient standards precedes this condition.)." The PSD avoidance condition is for NOx emissions and does not involve SO_2 emissions.
25	2.1.E.8.c	21	2.1.E.7.c	• Added asterisk and footnote for the venturi scrubber (ID No. CD-4) on the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3) specifying that it will control the boiler until the initial startup of the electrostatic precipitator (ID No. CD-4a). • Added reference to the electrostatic precipitator (ID No. CD-4a).

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
25 – 26	2.1.E.9	--	--	• Removed permit condition for 15A NCAC 02D .0530(u) for the boiler (ID No. ES-B3) to control emission from zones 3 through 7 of Line 1 steam-heated bake oven (ID No. ES-L1BO) and of Line 2. The five-year record keeping requirements have been met. • Renumbered the remainder of the section accordingly.
26	2.1.E.11.a	22	2.1.E.9.b	Corrected compliance date for the "NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters," 40 CFR 63 Subpart DDDDD.
26	2.1.E.11.b	--	--	Removed No. 6 fuel oil emission limits for the Case-by-Case MACT for boilers (ID Nos. ES-B1, ES-B2, and ES-B3).
26 – 27	2.1.E.11.d and e	22 – 23	2.1.E.9.e and f	Updated testing requirements for boilers (ID Nos. ES-B2 and ES-B3) under the Case-by-Case MACT.
27	2.1.E.11.i	23	2.1.E.9.j	Added value for the water injection rate for the fan impingement type scrubber (ID No. CD-2) measured during the performance test on November 9, 2014.
27	2.1.E.11.i	23	2.1.E.9.k	• Added value for the water injection rate for the venturi scrubber (ID No. CD-4) measured during the performance test on April 2, 2014. • Added asterisk and footnote for the venturi scrubber (ID No. CD-4) on the biomass/natural gas-fired boiler hybrid suspension grate type (ID No. ES-B3) specifying that it will control the boiler until the initial startup of the electrostatic precipitator (ID No. CD-4a).
--	--	23	2.1.E.9.l	Added requirement that secondary power has to be maintained at level measured during testing.
--	--	23	2.1.E.9.n	Added monitoring requirements for secondary power of the electrostatic precipitator (ID No. CD-4a) on boiler (ID No. ES-B3).
28	2.1.E.11.l	23	2.1.E.9.o	Added monitoring and recordkeeping requirements for secondary power of the electrostatic precipitator (ID No. CD-4a) on boiler (ID No. ES-B3).
--	--	24	2.1.E.10	Added permit condition for 15A NCAC 02D .0530(u) for the project to add the ESP (ID No. CD-4a) on the boiler (ID No. ES-B3)
--	--	25	2.1.E.11	Added requirement under NCGS 143-215.108 requiring the Permittee to submit notification of the actual date of initial startup of the boiler (ID No. ES-B3) with associated multicyclone (ID No. CD-3) and electrostatic precipitator (ID No. CD-4a).

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
30	2.1.F.5.a	26	2.1.F.5.b	Updated compliance date for the "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters," 40 CFR 63 Subpart DDDDD.
30	2.1.G – Regulations Table	26 – 27	2.1.G – Regulations Table	• Removed reference to 15A NCAC 02Q .0705. This rule was repealed on May 1, 2014. • Changed the term "State Only Requirement" to "State Enforceable Only."
31	2.1.H.1.b	27	2.1.H.1.b	Updated testing condition with most current language.
31	2.1.H.2.b	27	2.1.H.2.b	Updated testing condition with most current language.
32	2.1.I	29	2.1.I	Added identification numbers for the back-up fire pumps.
33	2.1.I.1.b	29	2.1.I.1.b	Updated testing condition with most current language.
33	2.1.I.2.b	29	2.1.I.2.b	Updated testing condition with most current language.
36	2.1.J – Regulations Table	31	2.1.J – Regulations Table	Changed the term "State Only Requirement" to "State Enforceable Only."
36	2.2.A – Regulations Table	32	2.2.A – Regulations Table	• Removed reference to 15A NCAC 02Q .0705. This rule was repealed on May 1, 2014. • Changed the term "State Only Requirement" to "State Enforceable Only."
36	2.2.A.1.a	32	2.2.A.1.a	Removed reference to 15 pounds per day of VOC from permit condition for 15A NCAC 2D .0958.
29	2.2.A.4	--	--	• Removed permit condition for 15A NCAC 02Q .0705, "Existing Sources and SIC calls." This rule was repealed on May 1, 2014. • Renumbered the permit accordingly.
39 – 41	2.2.B.e through m	35 – 36	2.2.B.e through j	• Rearranged the permit conditions so that the recordkeeping requirements come before the reporting requirements to be consistent with the remainder of the permit. • Changes the term "the Permittee must" to "the Permittee shall" throughout the section. • Corrected the numbering of the recordkeeping and reporting requirements.
41	2.3.A	37	2.3.A	• Changed the requirement to conduct "weekly visible emission observations" to "daily visible emission observations" for the wood collection and transfer systems. • Added reporting requirements.

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
42 - 43	2.3.B	38 – 39	2.3.B	• Removed No. 6 fuel oil as a permitted fuel for the boiler (ID No. ES-B2). • Specified that the unit was a small PSEU. • Changed monitoring to 12-hour block averages. • Updated the minimum flow rate to 104.4 gallons per minute, which was measured during the November 2014 testing. • Added reporting requirements.
43 – 45	2.3.C	39 – 40	2.3.C	• Removed No. 6 fuel oil as a permitted fuel for the boiler (ID No. ES-B3). • Specified that the unit was a small PSEU. • Changed monitoring to 12-hour block averages. • Updated the minimum flow rate for the venturi scrubber (ID No. CD-4) to 953 gallons per minute, which was measured during the April 2014 testing. • Added reporting requirements. • Added asterisk and footnote for the venturi scrubber (ID No. CD-4) specifying that it will control the boiler (ID No. ES-B3) until the initial startup of the electrostatic precipitator (ID No. CD-4a).
--	--	40 – 40	2.3.D	• Removed No. 6 fuel oil as a permitted fuel for the boiler (ID No. ES-B3). • Changed scrubber on the boiler to an electrostatic precipitator (ID No. CD-4a). • Specified that the unit was a small PSEU. • Changed monitoring to 12-hour block averages. • Required secondary power as a monitoring parameter.
45 – 46	2.3.D	--	--	Removed CAM requirement for SO_2 for boiler (ID No. ES-B2). With the removal No. 6 fuel oil as a permitted fuel, the boiler can meet all SO_2 emission limits without controls.
46 – 47	2.3.E	--	--	Removed CAM requirement for SO_2 for boiler (ID No. ES-B2). With the removal No. 6 fuel oil as a permitted fuel, the boiler can meet all SO_2 emission limits without controls.
48 – 57	Section 3.0	42 – 50	Section 3.0	Updated General Conditions and List of Acronyms with latest version (v4.0 12/27/2015).

The Title V Equipment Editor (TVEE) was updated as follows:

- Replace the existing venturi scrubber (ID No. CD-4) on the No. 3 boiler (ID No. ES-B3) with a dry ESP (ID No. CD-4a).
- Removed No. 6 fuel oil as a permitted fuel for boilers (ID Nos. ES-B1, ES-B2, and ES-B3).
- Removed four No. 6 fuel oil storage tanks (ID Nos. IES-FT1, IES-FT2, IES-FT.A and IES-FT.B).
- Removed glue tank (ID No. IES-LP-IT-8).

5. Modifications under Air Permit Application No. 9700001.16A

Under this permit application, LP is proposing to replace the venturi scrubber (ID No. CD-4) currently used to control emissions from the boiler (ID No. ES-B3) with a dry ESP (ID No. CD-4a). LP is also requesting to discontinue the use of No. 6 fuel oil for all boilers at the facility.

Replacing Control Device on Boiler (ID No. ES-B3)

The purpose of the project is to improve the margin of compliance with Best Available Control Technology (BACT) emission limit for particulate matter (PM) from boiler ES-B3, specifically when firing sander dust in this boiler. LP conducted several engineering tests in November 2013 while sander dust was being fired in the supplemental sander dust scroll burner in boiler ES-B3. The results of the test indicated LP could not achieve compliance with the BACT limit of 0.10 lb/million Btu when firing sander dust. The facility ceased firing sander dust upon discovery of the compliance issue.

LP has been working with WSRO and the SSCB to identify the cause of noncompliance since the issue was first discovered. The DAQ issued four "Deferral of Enforcement" (DOE) letters from April 2014 to June 2015 allowing LP to conduct engineering tests on the boiler to determine the cause of noncompliance when firing sander dust. (See Application Chronology in Section 3 for a discussion of the DOE letters.) LP ultimately identified zinc in the sander dust from zinc borate added during hardboard production as the cause of the particulate issue. Apparently, the venturi scrubber on boiler ES-B3 does not adequately control PM that contains zinc. LP proposes to replace the venturi scrubber with the ESP, which is expected to better control zinc PM.

Boiler ES-B3 will not be modified, and its heat capacity of 183 million Btu/hr will not change as a result of this project.

The dry ESP will have three charging fields, with 24 collector plates per field, and a total collection plate area of 42,269 square feet. LP estimates a greater than 90% control efficiency for PM for the ESP. Although boiler ES-B3 will not be modified as part of this project, the exhaust stack will need to be relocated to accommodate the installation of the new ESP. The new stack will be at least as tall as the existing stack.

The dry ESP is expected to be installed during the facility shutdown in early July 2016. The permit will indicate that boiler ES-B3 will be controlled by the venturi scrubber (ID No. CD-4) until initial startup of the ESP (ID No. CD-4a), and a condition under the provisions of North Carolina General Statute 143-215.108 will be added to the permit requiring LP to notify the DAQ of the initial startup of the ESP.

Replacing the control device and modifying the permitted fuel (i.e., removing No. 6 fuel oil) represent a physical change in or change in the method of operation for the boiler. As such, the emissions resulting from these modifications were reviewed to determine if this project would be considered a major modification under Prevention of Significant Deterioration (PSD) rules. LP assessed the applicability of PSD by performing the comparison test of baseline actual emissions (BAE) to projected actual emissions (PAE) in accordance with 40 CFR 51.166 and 15A NCAC 02D .0530(u).

For the BAE, LP conducted a five-year look back at emissions from boiler ES-B3 as prescribed in 15A NCAC 02D .0530(b)(1)(A). The 24-month average period of 2013 – 2014 was used as the

baseline period for all air pollutants. Actual fuel usage rates for the baseline period and the most current fuel-specific emission factors were used to calculate the BAE.

As defined in 40 CFR 51.166(b)(40)(i), PAE mean "the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant, and full utilization of the unit would result in a significant emissions increase, or a significant net emissions increase at the major stationary source." To determine the PAE, a source must consider all relevant information including but not limited to, historical operational data, the company's expected business activity and the company's highest projections of business activity for the five-year period after implementation of the project. LP calculated PAE for this project using the highest annual fuel usage rates for boiler ES-B3 within the 24-month period of 2013-2014. As specified in the permit application, the highest steam production for boiler ES-B3 occurred during these years.

The comparison of the BAE and PAE emissions are provided in the following table. The projected emissions increases are less than the PSD significant emission rate (SER) for all pollutants. Therefore, this project is not a major modification under PSD, and a PSD review is not required for this project.

Pollutant	BAE (tpy)	PAE (tpy)	Emission Increase (tpy)	PSD SER (tpy)	Below PSD SER
SO_2	1.21	17.1	15.9	40	Y
NO_x	144.2	156.7	12.4	40	Y
CO	378.7	410.4	31.8	100	Y
Total Filterable PM	39.7	61.6	21.9	25	Y
PM10	48.2	51.2	3.4	15	Y
PM2.5	48.2	46.1	-2.11	10	Y
VOC	10.89	11.63	0.74	40	Y
Fluorides	1.32E-4	0	-1.32E-4	3	Y
Lead	2.32E-2	3.56E-3	-1.96E-2	0.6	Y
GHG	134,310	143,348	9,037	75,000	Y

Notes:

- The BAE were based on the 24-month averaging period of 2013 – 2014.
- The BAE included emissions from No. 6 fuel oil, which is being removed under this permit modification.
- The BAE differ than values reported in DAQ's emission inventory (EI). It appears an incorrect emission factor was used for VOC in the emission inventory. Also, PM emissions as reported in the EI did not include condensibles.
- PAE were based on the fuel usage of wood in 2014 of 1,332,351 mm Btu/yr and usage of wood dust in 2013 of 45,762 mm Btu/yr.
- The PM10 and PM2.5 include condensibles.

A condition will be added to the permit under this modification to require five years of recordkeeping and annual reporting under 15A NCAC 02D .0530(u) for the project to replace the venturi scrubber with an ESP. The permit condition is provided in Attachment 1.

Removing No. 6 Fuel Oil

No. 6 fuel oil is being removed as permitted fuel from the boilers (ID Nos .ES-B1, ES-B3, and ES-B3). The descriptions for these boilers after modification is listed below:

- Natural gas-fired boiler (ID No. ES-B1)
- Biomass/natural gas-fired boiler (ID No. ES-B2) with multicyclone (ID No. CD-1) and fan impingement type scrubber (ID No. CD-2)
- Biomass/ natural gas-fired boiler (ID No. ES-B3) with multicyclone (ID No. CD-3) and venturi scrubber (ID No. CD-4)* OR ESP (ID No. CD-4a).

The regulations applicable to the boilers (ID Nos. ES-B1, ES-B2, and ES-B3) after modification are provided in Section 8. All tanks storing No. 6 fuel oil (IES-FT.A, IES-FT.B, IES-FT1, and IES-FT2) will also be removed from the permit under this permit modification.

* *The boiler **(ID No. ES-B3)** shall be controlled by the venturi scrubber **(ID No. CD-4)** until initial startup of the electrostatic precipitator **(ID No. CD-4a)**.*

6. Reopen for Cause under Air Permit Application No. 9700001.14B

CAM, as specified in 40 CFR Part 64 and 15A NCAC 02D .0614, is applicable to any pollutant-specific emission unit (PSEU), if the following three conditions are met:

- the unit is subject to any (non-exempt: e.g. pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- the unit's pre-control potential emission rate exceeds either 100 tpy (for criteria pollutants) or 10/25 tpy (for HAPs).

CAM is applicable to the bagfilters on the woodwaste collection and transfer systems and multicycles and scrubbers on the biomass / natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3).

As part of the permit application to renew the TV permit, LP submitted a CAM analysis and associated CAM plan indicating potential after control sulfur dioxide (SO_2) and PM emissions from boilers ES-B2 and ES-B3 were greater than 100 tons per year for the combined firing of No. 6 oil and biomass, or No. 6 oil only. As such, the boilers were considered large PSEUs. Requirements under CAM were initially added when the TV permit was renewed under Air Permit No. 03909T49 issued on November 13, 2012..[1]

Large PSEUs require more frequent monitoring than small PSEUs. As specified in 40 CFR 64.3 (b)(4), monitoring for large PSEUs (i.e., sources with post-controlled potential emissions greater than major source thresholds) must collect four or more values per hour to be averaged. Monitoring for other PSEU must collect data at least once per 24-hour period. The original CAM for boilers ES-B2 and ES-B3 required this increased frequency as well as 1-hour block averages for flow rate of the scrubbers.

In a letter dated July 15, 2014, LP presented information indicating the boilers (ID Nos. ES-B2 and ES-B3) are considered small PSEUs when firing biomass only. In the letter, LP also discussed

[1] Charlie Yirka (11/13/2012).

monitoring frequency under CAM for these boilers. LP did not object to taking samples of scrubber flow every 15 minutes, which is the monitoring frequency for large PSEUs. However, LP proposed using 12-hour block averages rather than 1-hour averages for CAM monitoring when not firing No. 6 fuel oil. DAQ reviewed the proposal and agreed the boilers are considered small PSEUs when firing biomass only. DAQ also initiated an application to reopen the permit to modify CAM requirements (Permit Application No. 9700001.14B). The CAM for boiler ES-B2 will be modified to allow 12-hour block averages for the injection rate for the scrubber. The CAM for boiler ES-B3 will be modified to replace the venturi scrubber with ESP and will include 12-hour block averages for the secondary power for the ESP.

The table below demonstrates the boilers (ID Nos. ES-B2 and ES-B3) are not large PSUEs as defined 40 CFR 64.5(a).

Emission Source	Control Device	Pollutant	Regulations	Potential Post Controlled Emissions (tpy)	Comments
ES-B2 (79 million Btu/hr)	Multicyclone (CD-1) and Fan impingement type scrubber (CD-2)	PM-10	02D .0504	98.4	Potential post controlled emissions demonstrate the unit is a small PSEU. The emissions are based on the PM10 emission limit in the Case-by-Case MACT for boiler ES-B2, the emission factor for condensable PM for a wet scrubber from NCASI (Table 5.1 from NCASI TB1013), and the heat capacity of the boiler. E = (0.27 lb/mm Btu + 0.0145 lb/mm Btu) * 79 mm Btu/hr* 8760 hr * 1 ton/2000 lb E = 98.4 tpy Source testing results from April 2014 for boiler ES-B2 showed PM10 (filterable) emissions at 0.10 lb/mmBtu. Source testing results from November 2014 for boiler ES-B2 showed PM10 (filterable) emissions at 0.093 lb/mmBtu.
ES-B3 (183 million Btu/hr)	Multicyclone (CD-3) and Venturi scrubber (CD-4)* which is being replaced with ESP (CD-4a)	PM-10	02D .0504 02D .0530	87.3	Potential post controlled emissions demonstrate the unit is a small PSEU. The emissions are based on BACT limit for PM10 for boiler ES-B3, the emission factor for condensable PM for an ESP from NCASI (Table 5.1 from NCASI TB1013), and the heat capacity of the boiler. E = (0.10 lb/mm Btu + 0.0089 lb/mm Btu) * 183 mm Btu/hr * 8760 hr * 1 ton/2000 lb E = 87.3 tpy Source testing results from 2014 for boiler ES-B3 being controlled via the venturi scrubber showed PM10 (filterable) emissions at 0.06 lb/mmBtu. The permit will be modified to require testing for the ESP.

* The boiler **(ID No. ES-B3)** shall be controlled by the venturi scrubber **(ID No. CD-4)** until initial startup of the electrostatic precipitator **(ID No. CD-4a)**.

LP has since submitted permit application No. 9700001.16A to remove No. 6 fuel oil as a permitted fuel for the boilers. With this change, the facility requires no controls to meet SO_2 limits when firing natural gas or biomass in the boilers because of the low sulfur content of these fuels. Therefore, CAM for SO_2 is no longer applicable to the biomass/ natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3). The CAM for SO_2 in Sections 2.3.D. and 2.3.E of the permit for boilers ES-2 and ES-3, respectively, will be removed under this modification.

CAM remains applicable for PM emissions. The CAM conditions will be revised under this permit modification to remove No. 6 fuel oil and to change the monitoring requirements to 12-hour block averages. A CAM condition will be added for the ESP (ID No. CD-4a) on boiler ES-B3. The permit will also retain a CAM condition for the venturi scrubber on boiler ES-B3 because the boiler will be controlled by the venturi scrubber (ID No. CD-4) until initial startup of the ESP (ID No. CD-4a). The revised CAM conditions for boilers ES-B2 and ES-B3 are provided in Attachment 2.

The CAM condition for the woodwaste collection and transfer systems is also being modified under this permit modification. The current CAM for these units requires weekly visible emission observations. The Permitting Section has consistently required a daily visible observation for small PSEUs subject to 02D .0512 and 02D .0521. The CAM will be modified to change the monitoring from weekly to daily visible emission observations for these units.

7. Administrative Amendments under Air Permit Application Nos. 9700001.14A and 9700001.15A

Permit Section 2.1.E.11 in the current permit (Air Permit No. 03909T51) requires LP to conduct source testing on boilers (ID Nos. ES-B2 and ES-B3) to demonstrate compliance with emission limits under 15A NCAC 02D .1109, Case-by-Case MACT. LP must also establish steam loads for the boilers and water injection rates for the scrubbers (ID Nos. CD-2 and CD-4) during testing.

The facility conducted stack testing on boilers ES-B2 and ES-B3 in April 2014. The results demonstrated compliance with the emission limits for PM and CO. Because of a low steam load for boiler No. 2 observed during the April 2014 testing, LP conducted a retest for PM and CO for boiler ES-B2 in November 2014. The results again demonstrated compliance with the emission limits but at a higher steam load. The water injection rates measured during testing are shown in the table below.

Parameter	Boiler ES-B2	Boiler ES-B3
Water injection rate for scrubbers (ID Nos. CD-2 and CD-4)	April 2014 testing 109 gpm November 2014 testing 104.4 gpm	April 2014 testing 953 gpm
Notes: • The results of the April 2014 testing were approved by James Hammond of the SSCB and summarized in a memoranda dated November 12, 2014. • The results of the November 2014 testing were approved by Gary Saunders of SSCB and summarized in a memoranda dated October 28, 2015.		

The permit will be updated to reflect the injection rates from the November 2014 testing for the fan impingement type scrubber (ID No. CD-2) on boiler ES-B2 and the venturi scrubber (ID No. CD-4)

on boiler ES-B3. Emissions from boiler ES-B3 will be controlled via an ESP upon initial startup after the July 2016 shutdown. LP will be required to establish operating parameters for the ESP during testing. The testing must be conducted within 180 days of initial startup of the ESP

8. Regulatory Review for Boilers (ES-B1, ES-B2, and ES-B3)

This section only discusses rules applicable to the natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3). With one minor exception, the permit applications associated with this modification (9700001.14A, 9700001.14B, 9700001.15A, and 9700001.16A) do not affect other permitted sources at LP and are not discussed in this permit review.[2]

- 15A NCAC 02D .0402, "Ambient Air Quality Standards, Sulfur Dioxides" and 15A NCAC 02D .0501, "Compliance with Emission Controls" – In accordance with 15A NCAC 02D .0501(e), LP previously demonstrated via permit application the alternative mix of controls as allowed under 15A NCAC 02D .0501(d) was equivalent to the existing requirements of the state implementation plant in total allowed emissions, enforceability, reliability, and environmental impact. The permit application included air modeling that demonstrated compliance with NAAQS for sulfur dioxide as specified in 15A NCAC 02D .0402.

  The air modeling included emissions of No. 6 fuel oil, which is being removed under this permit modification. The permit condition will be modified to specify that LP is no longer permitted to fire No. 6 fuel oil in its boilers, and the associated limits for No. 6 fuel oil be removed from the permit condition.

- 15A NCAC 02D .0503, "Particulates from Fuel Burning Indirect Heat Exchangers" – The natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are subject to 02D .0503 when firing natural gas. Allowable PM emissions are determined from the equation $E = 1.090(Q)^{-0.2594}$, where E equals the allowable emission limit for PM in pounds per million Btu and Q equals the maximum heat input in million Btu per hour. With a Q of 306.4 million Btu/hr (44.4 million Btu/hr + 79 million Btu/hr + 183 million Btu/hr), the allowable PM emissions from these boilers equal 0.25 pounds per million Btu. The permit specifies a value of 0.26 pounds per million Btu, and this value will be corrected under this permit modification.

  With the removal of No. 6 fuel oil, the only fuel fired in the boilers applicable to 02D .0503 is natural gas. The emission factor for natural gas is 0.007 pounds per million Btu as provided in the DAQ spreadsheet.[3] Thus, no monitoring, recordkeeping, or reporting is required to ensure compliance for this rule.

  The permit will be updated to remove No. 6 fuel oil from this condition and to correct the emission limit.

- 15A NCAC 02D .0504, Particulates from Wood Burning Indirect Heat Exchangers – The biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are

[2] The one exception is the CAM for the woodwaste collection and transfer systems. The CAM will be modified to change the monitoring from weekly to daily visible emission observations.
[3] Natural gas emission factor is from the DAQ's "Natural Gas Combustion Emission Calculator Revision K" (06/19/2012).

subject to 02D .0504 when firing biomass. Allowable PM emissions are determined from the equation $E = 1.1698(Q)^{-0.2230}$, where E equals the allowable emission limit for PM (in pounds per million Btu) and Q equals the maximum heat input in million Btu per hour. With a Q of 262 million Btu/hr (79 million Btu/hr + 183 million Btu/hr), the allowable PM emissions from these boilers equal 0.34 pounds per million Btu. LP has to conduct inspection and maintenance on the control devices to ensure compliance with this rule.

The permit will be updated to add the ESP (ID No. CD-4a) on boiler ES-B3 and to specify boiler ES-B3 will be controlled by the venturi scrubber (ID No. CD-4) until initial startup of the ESP (ID No. CD-4a).

- 15A NCAC 02D .0516, "Sulfur Dioxide Emissions from Combustion Sources" – The natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are subject to 02D .0516. No monitoring, recordkeeping, or reporting is required when firing natural gas or wood in the boilers because of the low sulfur content of the fuels. These fuels are inherently low enough in sulfur that continued compliance is expected.

  The permit will be updated to remove No. 6 fuel oil and associated requirements from this condition

- 15A NCAC 02D .0521, "Control of Visible Emissions" – The following equipment was manufactured and operating as of July 1, 1971 and must not have visible emissions of more than 40 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 02D .0521(c):
  - The natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boiler (ID No. ES-B2) – To ensure compliance with 02D .0521, LP is required to conduct daily visible emission observations when firing biomass in boiler ES-B2. No monitoring, recordkeeping, or reporting is required when firing natural-gas in the boilers.

  The following equipment was manufactured and operating after July 1, 1971 and must not have visible emissions of more than 20 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 02D .0521(d):
  - The biomass/natural gas-fired hybrid suspension grate type boiler (ID No. ES-B3) – To ensure compliance with 02D .0521, LP is required to conduct daily visible emission observations when firing wood in the boiler. No monitoring, recordkeeping, or reporting is required when firing natural-gas in the boiler.

  The permit will be updated to remove No. 6 fuel oil and associated requirements from this condition

- 15A NCAC 02D .0530, "Prevention of Significant Deterioration," - The biomass/natural gas-fired hybrid suspension grate type boiler (ID No. ES-B3) is subject to a BACT limit for particulate matter less than 10 micrometers in diameter (PM10). More discussion on PSD is provided in Section 9.

- 15A NCAC 02D .0530(u), "Use of Projected Actual Emissions to avoid Applicability to PSD Requirements" – LP has used PAE from boiler (ID No. ES-B3) to demonstrate that using the boiler (ID No. ES-B3) to control emission from zones 3 through 7 of Line 1 steam-heated bake

oven (ID No. ES-L1BO) and of Line 2 steam-heated bake oven (ID No. ES-L2BO) would not result in a SER, as allowed under 15A NCAC 02D .0530(u). The recordkeeping requirements under this regulation were added to the Air Permit No. 03909T42 issued on February 4, 2008.[4] The table below shows the PAE associated with this project, which were reported in the permit review for Air Permit No. 03909T42. Actual emissions for boiler ES-B3 as reported in DAQ's emission inventory are also shown in the table.

Projected Actual Emissions from Boiler ES-B3 as presented in the Permit Review for Air Permit No. 03909T42 (tpy)						
Emission Source	**PM**	**PM-10**	**SO_2**	**NOx**	**CO**	**VOC**
ES-B3	40.54	35.13	1.38	167.5	421.41	10.21
Actual Emissions (tpy)						
Calendar Year	**PM**	**PM-10**	**SO_2**	**NOx**	**CO**	**VOC**
CY2008	36.85	31.93	1.09	152.76	389.28	8.43
CY2009	28.37	24.58	1.29	121.9	300.82	6.52
CY2010	29.67	25.7	1.49	125.13	314.71	6.8
CY2011	30.96	26.85	0.91	130.52	328.33	7.12
CY2012	26.94	23.34	0.8	113.91	285.77	6.19
CY2013	35.38	30.66	1.15	142.77	371.67	8.05
CY2014	41.01	33.08	1.11	145.68	390.81	8.61

Notes:

- The difference between the PAE and the BAE for PM emissions was 9.47 tons/yr as discussed in the permit review for Air Permit No. 03909T42. The SER for PM is 25 tpy.
- The difference between the PAE and the BAE for SO_2 emissions was 2.81 tons/yr as discussed in the permit review for Air Permit No. 03909T42. The SER for SO_2 is 40 tpy.

Although actual emissions from boiler ES-B3 slightly exceeded the PAE in two instances, these exceedances do not represent a noncompliance situation. The margin of compliance with the PSD significant emission rates for this project was much larger than the slight exceedance of the PAE noted in the table above. Please see the permit review for Air Permit No. 03909T42 for a detailed full discussion of the PAE associated with this project.[5]

The small increase in PAE does not represent noncompliance with PSD, and the five-year recordkeeping requirements under this regulation have been met. Therefore, the permit condition for 15A NCAC 2D .0530(u) associated with using boiler ES-B3 as a control device will be removed under this permit modification.

As discussed above in Section 5 above, LP is using the PAE from boiler (ID No. ES-B3) to demonstrate that replacing the venturi scrubber (ID No. CD-4) with an ESP would not result in a SER, as allowed under 15A NCAC 02D .0530(u). A permit condition for 15A NCAC 02D .0530(u) for this project will be added to the permit under this modification.

More discussion on 15A NCAC 02D .0530(u) is provided in Section 9.

[4] See the permit review for Air Permit No. 03909T42 for full discussion of the PAE associated with this project. (Gautam Patnaik, 02/04/2008).
[5] Gautam Patnaik (02/04/2008).

- 15A NCAC 02D .0614, "Compliance Assurance Monitoring" – The biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are subject to CAM, as discussed previously in Section 6.

- 15A NCAC 02D .1109 "Maximum Achievable Control Technology (MACT)" – The natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are subject to the Case-by-Case MACT requirements under 112(j). More discussion on the MACT is provided in Section 9.

- 15A NCAC 02D .1111 "Maximum Achievable Control Technology (MACT)" – The natural gas-fired boiler (ID No. ES-B1) and the biomass/natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3) are subject "NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters," 40 CFR Part 63 Subpart DDDDD (MACT Subpart DDDDD). More discussion on the MACT is provided in Section 9.

- 15A NCAC 02Q .0317, "Avoidance Conditions" – LP has accepted an avoidance condition for 15A NCAC 02D .0530, PSD, to limit emissions of nitrogen oxides (NO_x) from the biomass/natural gas-fired hybrid suspension grate type boiler (ID No. ES-B3) to less than 355.3 tons of nitrogen oxide emissions per consecutive 12-month period. More discussion on PSD avoidance is provided in Section 9.

9. NSPS, NESHAPS/MACT, NSR/PSD, 112(r), CAM

NSPS

LP is subject to the following New Source Performance Standards.

NSPS Subpart Dc

Natural gas-fired boilers (ID Nos. ES-B4T and ES-B5T) are subject to the "NSPS for Small Industrial, Commercial, Institutional Steam Generating Units," 40 CFR Part 60 Subpart Dc. This permit modification does not affect NSPS Subpart Dc requirements, and no changes to the permit are needed.

NSPS Subpart IIII

The two backup diesel-fired generators (ID Nos. ES-DGEN1 and ES-DGEN2) and the temporary diesel-fired emergency generator (ID No. ES-DGEN) are subject to "NSPS for Stationary Compression Ignition Internal Combustion Engines," 40 CFR 60, Subpart IIII. This permit modification does not affect NSPS Subpart IIII requirements, and no changes to the permit are needed.

MACT

LP is a major source of hazardous air pollutants (HAPs) and is subject to the following MACTs.

MACT Subpart DDDD

The thermochemical pulping system and the hardboard manufacturing equipment lines are subject to the "NESHAP for Plywood and Composite Wood Products," 40 CFR Part 63 Subpart DDDD. This permit modification does not affect these processes, and no change to the permit is needed.

MACT Subpart QQQQ
The trimboard manufacturing and the finishing lines are subject to the "NESHAP for Surface Coating of Wood Building Products," 40 CFR Part 63 Subpart QQQQ. This permit modification does not affect these processes, and no change to the permit is needed.

MACT Subpart ZZZZ
The two diesel-fired emergency back-up fire pumps (ID Nos. ES-FP1 and ES-FP2) are subject to the "NESHAP for Stationary Reciprocating Internal Combustion Engines," 40 CFR Part 63 Subpart ZZZZ. This permit modification does not affect these engines, and no change to the permit is needed.

The four gasoline generators (IES-G1, IES-G2, IES-G3, and IES-G4) are not subject to 40 Subpart ZZZZ because they are not stationary engines.

MACT Subpart DDDDD
The boilers (ID Nos. ES-B1, ES-B2, ES-B3, ESB4T, and ES-B5T) will be subject to the "NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers," 40 CFR Part 63 Subpart DDDDD beginning on May 20, 2019. The requirements for MACT Subpart DDDDD will be added to the permit at the next permit renewal, which is expected to be issued prior to the compliance date for the MACT.

Case-by-Case MACT
All boilers (ID Nos. ES-B1, ES-B2, ES-B3, ES-B4T, and ES-B5T) are subject to 15A NCAC 02D .1109, Case-by-Case MACT. The requirements for Case-by-Case MACT were added to the permit under Air Permit No. 03909T46 issued on November 1, 2010, with a compliance date of November 1, 2013.

Under the Case-by-Case MACT, boilers (ID Nos. ES-B1, ES-B2, and ES-B3) are subject to emission limits for filterable PM, mercury (Hg), and CO when firing No. 6 fuel oil. The facility has to conduct testing to demonstrate compliance with these limits when firing No. 6 fuel oil. LP has not fired any fuel oil in the boilers since the compliance date of November 1, 2013 and thus, has not been required to conducted testing for No. 6 fuel oil. These requirements will be removed with the removal of No. 6 fuel oil under this permit modification.

Boilers (ID Nos. ES-B2 and ES-B3) are subject to emission limits for filterable PM, Hg, CO, and hydrogen chloride equivalents (HCl) when firing wood. The permit requires the facility to conduct source testing on the boilers and/or conduct a fuel analysis to demonstrate compliance with the emissions limits. The facility conducted stack testing for PM and CO for boilers ES-B2 and ES-B3 in April 2014. The results of the testing were approved by James Hammond of the SSCB and summarized in a memoranda dated November 12, 2014. The results demonstrated compliance with the emission limits for PM and CO.

LP also had to establish steam loads for the boilers and flow rates for the scrubbers during testing. Once established, the facility is limited to operating at 110 percent of the steam load observed during the testing. The low steam load for boiler ES-B2 observed during testing was problematic for the facility because the load limited LP's ability to operate during the winter. After the April 2014 testing, LP conducted maintenance on boiler ES-B2, including removing a great deal of ash buildup. In November 2014, LP conducted a retest for PM and CO for boiler ES-B2. The results of the testing were approved by Gary Saunders of SSCB and summarized in

a memoranda dated October 28, 2015. The results again demonstrated compliance with the emission limits for PM and CO, with a much higher steam load observed during testing.

Additionally, sampling for fuel analysis occurred from August 2013 through April 2014 to demonstrate compliance with the Hg and HCl limits. The results of the fuel analysis were approved by James Hammond and summarized in a memoranda dated December 14, 2014.

The results for all stack testing and fuel analyses are summarized in the table below.

Pollutant	**Emission Limit**	**Boiler ES-B2**	**Boiler ES-B3**
Filterable PM	0.27 lb/mm Btu for ES-B2 0.18 lb/mm Btu for ES-B3	April 2014 testing 0.10 lb/mm Btu 37% of limit November 2014 testing 0.093 lb/mm Btu 34% of limit	April 2014 testing 0.06 lb/mm Btu 60% of limit
CO	2,718 ppmvd @ 7% oxygen	April 2014 testing 2,204 ppmv @ 7% oxygen 81% of limit November 2014 test 1,839 ppmv @ 7% oxygen 68 of limit	April 2014 testing 493 ppmv @ 7% oxygen 18% of limit
Steam load	--	April 2014 testing 26,806 lb/hr November 2014 testing 32,946 lb/hr	April 2014 testing 119,070 lb/hr
Scrubber injection rate	--	April 2014 testing 109 gpm November 2014 testing 104.4 gpm	April 2014 testing 953 gpm
Hg	5E-6 lb/mm Btu	8.88E-7 lb/mm Btu 18 % of limit	
HCl	0.02 lb/mm Btu	0.01 lb/mm Btu 50% of limit	

Notes:
1. The results of the April 2014 testing were approved by James Hammond of the SSCB and summarized in a memoranda dated November 12, 2014.
2. The results of the fuel sampling for Hg and HCl were approved by James Hammond of the SSCB in a memorandum dated December 3, 2014.
3. The results of the November 2014 testing were approved by Gary Saunders of SSCB and summarized in a memoranda dated October 28, 2015.

As specified in Section 2.1.E.11.e.i of the current permit, annual (every 11 to 13 months) emission testing is required for the boilers under the Case-by-Case MACT. The testing frequency can be reduced to every five years if a stack test shows the emission rate of PM or CO is less than or equal to 80 percent of the allowable limit. The results of the November 2014 testing confirmed that emissions of PM and CO are less than 80 percent of the allowable limit for boiler ES-B2. Subsequent testing for this boiler will be due five years from the prior test date.

Because the venturi scrubber (ID No. CD-4) on boiler ES-B3 is being replaced with an ESP (ID No. CD-4a), LP will have to conduct PM testing to establish appropriate parametric monitoring for the ESP. LP has proposed to continuously monitor the secondary power of the ESP, which will be used to establish a 12-hour block average. The testing must be conducted within 180 days of initial startup of the ESP.

Under the Case-by-Case MACT, boilers equipped with a gas burner have to comply with work practice standards when firing natural gas, and LP has to conduct at least one tune-up per calendar year to demonstrate compliance with this requirement. The most recent compliance inspection indicates LP has conducted the required tune-ups for boilers ES-B1 and ES-B2. Although boiler ES-B3 is permitted to burn natural gas, it does not have a gas burner and is not subject to this requirement.[6] The temporary boilers (ID Nos. ES-B4T and ES-B5R), although permitted, are not currently onsite.[7]

The requirements for burning No. 6 fuel oil will be removed from the Case-by-Case MACT requirements under this permit modification. The revised permit condition for the Case-by Case MACT is provided in Attachment 3.

PSD

LP is located in Wilkes County, which is currently designated as attainment or unclassified for all PSD regulated pollutants. This facility is major for PSD purposes because it has potential emissions of VOC, NO_x, SO_2, and CO above 250 tons per year.

The initial TV permit indicated boiler ES-B3 has undergone a PSD analysis for emissions of particulate matter in the past, although it was unclear when the PSD analysis was conducted. The BACT limit agreed upon was 0.10 pounds of PM per million Btu from boiler ES-B3. Removing No. 6 fuel oil will not affect this BACT limit, and LP is expected remain in compliance with this limit with the new ESP as particulate control on boiler ES-B3. The new ESP is also expected to allow compliance with the BACT limit when firing sander dust in boiler ES-B3.

The permit includes several PSD avoidance conditions. The table below lists the avoidance limits and provides information on the reason each condition was added to the permit. Also provided in the table is a summary of projects using PAE to avoid PSD in accordance with 02D .0530(u).

Emission Source ID	Pollutant	Limit (tpy)	Comments
PSD Avoidance Conditions			
ES-SM Groove Sealer spray booth	VOC	40	This avoidance condition was included in the initial TV permit, Air Permit No. 03909T34.

[6] As noted in the permit review for Air Permit No. 03909T49, "inspection of burners not required during solid fuel firing." Charlie Yirka (11/13.2012).

[7] Robert Barker (05/20/2015)

Emission Source ID	Pollutant	Limit (tpy)	Comments
ES-B3 Biomass/ natural gas-fired boiler hybrid suspension grate type	NOx	355.3	This avoidance condition was added under Air Permit No. 03909R28. The boiler was modified to allow the boiler to burn fine wood dust in addition to the larger size woodwaste. To avoid PSD, the facility must limit potential NO_x emissions to 355.3 tpy. The avoidance limit was based on 39.9 tpy plus actual emissions of NO_x of 315.4 tpy. LP is limited to 180.6 million Btu/hr per 12-month period on a 12 month rolling average to ensure the NOx limit is not exceeded. See permit review for Air Permit No. 03909R28 for full discussion. (Michael Smithwick, 05/10/2000).
ES-DGEN1 and ES-DGEN2 Two backup diesel-fired generators	NOx	40	This avoidance condition was added under Air Permit No. 03909T41. The addition of these engines had potential emissions of NOx well over 40 tpy. The operating hours of these engines are limited to 2,500 hours per year total to limit emissions to less than 40 tpy. See permit review for Air Permit No. 03909T41 for full discussion. (Steve Hall, 12/15/2006).
ES-DGEN One temporary diesel-fired emergency generator	NOx	40	This avoidance condition was added under Air Permit No. 03909T42. The addition of this engine had potential emissions of NOx well over 40 tpy. The operating hours of this engine are limited to 500 hours. This limit was requested by the applicant. See permit review for Air Permit No. 03909T42 for full discussion. (Gautam Patnaik, 02/04/2008).
PAE Demonstrations under 02D .0530(u)			
ES-B3 Biomass/ natural gas-fired boiler hybrid suspension grate type	Multiple	Recordkeeping to assure compliance	A permit condition specifying that the facility was avoiding applicability to PSD using PAE in accordance with 02D .0530(u) was added under Air Permit No. 03909T42. Boiler ES-B3 was modified to control emission from zones 3 through 7 of Line 1 steam-heated bake oven (ID No. ES-L1BO) and of Line 2 steam-heated bake oven (ID No. ES-L2BO). LP used PAE to demonstrate that using boiler ES-B3 as control for these emission sources would not result in a significant emissions increase. See permit review for Air Permit No. 03909T42 for full discussion. (Gautam Patnaik, 02/04/2008). This requirement is being removed under this permit modification because the recordkeeping requirements have been met.

Emission Source ID	Pollutant	Limit (tpy)	Comments
ES-B3 Biomass/ natural gas-fired boiler hybrid suspension grate type	Multiple	Recordkeeping to assure compliance	A permit condition specifying that the facility will avoiding applicability to PSD using PAE in accordance with 02D .0530(u) will be added under this permit modification. The venturi scrubber on boiler ES-B3 will be replaced with an ESP. LP used PAE to demonstrate that replacing the venturi scrubber will not result in a significant emissions increase.

Removing No. 6 fuel oil as a permitted fuel for boiler ES-B3 will not affect the PSD avoidance conditions cited in the table above. The PSD avoidance limit for boiler ES-B3 was added when the boiler was modified to allow firing of sander dust in the boiler (Air Permit No. 03909T28). The use of PAE was included in the permit to allow the boiler to be used as controls for the steam heated bake ovens (Air Permit No. 03909T42). Both of these modifications are unrelated to firing No. 6 fuel oil in boiler ES-B3.

112(r)

The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in 112(r). This permit modification does not affect the 112(r) status of the facility.

CAM

CAM is applicable to the bagfilters on the woodwaste collection and transfer systems and the multicycles, scrubber, and ESP on the biomass / natural gas-fired hybrid suspension grate type boilers (ID Nos. ES-B2 and ES-B3). A detailed discussion of the CAM for LP is found in Section 6.

10. Facility Wide Air Toxics

The permit contains modeled emission limits for several toxic air pollutants (TAPs) from the fuel wood system (ID No. ES-FS1) and various gasoline tanks under 15A NCAC 02D .1100. The facility has also previously demonstrated numerous TAPs are below their Toxics Permitting Emission Rates, in accordance with 02Q .0711. This permit modification does not affect the facility's status with respect to 02D .1100 and 02Q .0711, and no changes to the permit are needed. Continued compliance is anticipated.

11. Facility Emissions Review

Actual emissions for 2010 through 2014 are reported in the header of this permit review.

12. Compliance Status

DAQ has reviewed the compliance status of this facility. During the most recent inspection conducted on May 20, 2015, Robert Barker of the WSRO indicated that the facility appeared to be in compliance with all applicable requirements. Additionally, a signed Title V Compliance Certification (Form E5) indicating that the facility was in compliance with all applicable requirements was submitted with Air Permit No. 9700001.16A on February 19, 2016.

Five-year compliance history

On January 19, 2014, the WSRO issued a Notice of Violation (NOV) for an exceedance of the BACT particulate limitation on boiler ES-B3 that was documented during the November 2013 stack testing while firing sander dust. The DAQ decided not to seek as civil penalty because the exceedance was a result of modifications made to the boiler and its associated venturi scrubber for compliance with the Case-by-Case Boiler MACT, referenced in Section 2.1.E.11 of the permit. LP immediately ceased burning sander dust in the boiler when it became aware of the exceedance. Noncompliance associated with firing sander dust in boiler ES-B3 will be resolved with the installation and operation of the ESP.

13. Other Regulatory Considerations

- A P.E. seal is required for Permit Application No. 9700001.16A and was provided in the permit application.
- A zoning consistency determination is required for Permit Application No. 9700001.16A. The area in which LP is located does not have zoning. As such, a notice was placed in the local paper and a sign has been placed in front of the plant as required pursuant to 15A NCAC 02Q .0113. The facility provided an affidavit and proof of publication of the legal notice as part of the permit application.
- A permit application fee of $922 is required for Permit Application No. 9700001.16A and was submitted with the permit application.

14. Recommendations

The permit modification application for Louisiana Pacific Corporation located in Roaring River, Wilkes County, NC has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 03909T52.

Attachment 1

15A NCAC 02D. 0530(u) Condition for Boiler (ID No. ES-B3)

Section 2.1.E

10. 15A NCAC 02D. 0530(u): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

a. The Permittee has used projected actual emissions to avoid applicability of Prevention of Significant Deterioration requirements for a project to replace the venturi scrubber used to control emissions from the biomass/natural gas-fired boiler **(ID No. ES-B3)** with an electrostatic precipitator **(ID No. CD-4a)**. This project also involves removing No. 6 fuel oil as a permitted fuel at the facility and is fully described in Application No. **9700001.16A**.

Monitoring/Recordkeeping/Reporting [15A NCAC 2DQ.0508(f), 15A NCAC 2D .0530(u)]

b. The Permittee shall maintain records of actual emissions resulting from the combustion of natural gas and biomass in the biomass/natural gas-fired boiler **(ID No. ES-B3)** in tons per year on a calendar year for five years following the resumption of regular operations upon commencement of the modifications described in Application No. **9700001.16A.**
c. The Permittee shall make the information, documented and maintained in Section 2.1.E.10.b, above, available to the Director or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii).
d. The Permittee shall submit a report to the Director within 60 days after the end of each year during which these records must be generated. The report shall contain the items listed in 40 CFR 51.166(r)(6)(v)(a) through (c).
e. The Permittee shall provide a comparison of the reported actual emissions (post-construction emissions) for each of the five calendar years to the projected actual emissions (pre-construction projection) as included below:

Pollutant	Projected Actual Emissions* (tons per year)
SO_2	17.1
NO_x	156.7
CO	410.4
PM (filterable only)	61.6
PM_{10}	51.2
$PM_{2.5}$	46.1
VOC	11.63
Fluorides	0
Lead	3.56E-3
GHG	143,348

* These projections are not enforceable limitations.

If projected emissions are exceeded, consistent with 15A NCAC 02D .0530, the Permittee shall include an explanation as to why the actual rates exceeded the projection in the annual report required under Section 2.1.E.10.d.

B. Biomass / Natural Gas-Fired Boiler (ES-B2) Multicyclone and Wet Scrubber Controlling PM10:

I. Background	
Emission Unit	**Biomass / Natural Gas-Fired Boiler** Emission Source ID: ES-B2
Control Device	**Multicyclone** Control Device ID: CD-1 **Fan Impingement Type Scrubber** Control Device ID: CD-2
Applicable Regulations & Emission Limits	02D.0504: Particulates from Wood Burning Indirect Heat Exchangers • PM: 0.34 lb/MMBtu
Is the unit a major source post-control?	No. See results of stack test conducted on November 19, 2014 and emission factor for condensable PM.
II. Monitoring Approach	
CAM Indicators	Multicyclone and wet scrubber inspection/maintenance. Liquid scrubber flow rate
Measurement Approach/ Monitoring Frequency	Inspections and maintenance shall be performed on the multicyclone and the wet scrubber as recommended by the manufacturer, including at a minimum: monthly external visual inspections of the ductwork and collection units, and annual internal inspection of the multicyclone and scrubber for structural integrity. Liquid scrubber flow rate will be monitored continuously with a minimum of 4 data points (every 15 minutes) recorded each hour. The average flow rate will be determined and recorded for each 12-hour block average.
Indicator Range	Abnormal condition of the multicyclone or wet scrubber will trigger corrective action, which could include repair of components. 12-hour block average flow rates of less than the minimum of 104.4 gallons per minute will trigger corrective action.
Justification/ Rationale	Condition of the control devices and the rate of liquid make-up to the scrubber are indicative of acceptable performance of the control equipment. An excursion is defined as a 12-hour block average flow rates of less than the minimum of 104.4 gallons per minute. An excursion will trigger corrective action.
III. Performance Criteria	
Data Representativeness	Personnel will perform visual inspections of the equipment. The continuous monitoring system is certified by the manufacturer to have an accuracy of ±1% of the flow rate.
QA/QC Practices and Criteria	Personnel performing inspections/maintenance will be properly trained. Monitors will be calibrated and maintained per manufacturer's recommendations.
Data Collection Procedures	An electronic or written logbook will be kept of all control device inspections and corrective actions. A data logger system will record the flow rate continuously and compute the average flow for each 12-hour block average.
Averaging period	There are no averaging periods associated with inspections. 12-hour block averages

IV. Reporting [15A NCAC 02Q .0508(f) and 40 CFR §64.9]
The Permittee shall submit a summary report of the monitoring postmarked or delivered on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified. The report shall also include the following information, as applicable: i. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; ii. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and iii. A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

C. Biomass / Natural Gas-Fired Boiler (ES-B3) Multicyclone and Wet Scrubber Controlling PM10:

I. Background	
Emission Unit	**Biomass / Natural Gas-Fired Boiler** Emission Source ID: ES-B3
Control Device	**Multicyclone** Control Device ID: CD-3 **Venturi Scrubber*** Control Device ID: CD-4 * The boiler **(ID No. ES-B3)** shall be controlled by the venturi scrubber **(ID No. CD-4)** until startup of the electrostatic precipitator **(ID No. CD-4a)**.
Applicable Regulations & Emission Limits	02D .0504: Particulates from Wood Burning Indirect Heat Exchangers • PM: 0.34 lb/MMBtu 2D.0530: PSD; BACT Limitation PM: 0.10 lb/MMBtu
Is the unit a major source post-control?	No based on the BACT limit for filterable PM and emission factor for condensibile PM
II. Monitoring Approach	
CAM Indicators	Multicyclone and wet scrubber inspection/maintenance. Liquid scrubber flow rate
Measurement Approach/ Monitoring Frequency	Inspections and maintenance shall be performed on the multicyclone and the wet scrubber as recommended by the manufacturer, including at a minimum: monthly external visual inspections of the ductwork and collection units, and annual internal inspection of the multicyclone and scrubber for structural integrity. Liquid scrubber flow rate will be monitored continuously with a minimum of 4 data points (every 15 minutes) recorded each hour. The average flow rate will be determined and recorded for each 12-hour block average.
Indicator Range	Abnormal condition of the multicyclone or wet scrubber will trigger corrective action, which could include repair of components.

	12-hour block average flow rates of less than the minimum of 953 gallons per minute will trigger corrective action.
Justification/ Rationale	Condition of the control devices and the rate of liquid make-up to the scrubber are indicative of acceptable performance of the control equipment. An excursion is defined as a 12-hour block average flow rates of less than the minimum of 953 gallons per minute. An excursion will trigger corrective action.
III. Performance Criteria	
Data Representativeness	Personnel will perform visual inspections of the equipment. The continuous monitoring system is certified by the manufacturer to have an accuracy of ±1% of the flow rate.
QA/QC Practices and Criteria	Personnel performing inspections/maintenance will be properly trained. Monitors will be calibrated and maintained per manufacturer's recommendations.
Data Collection Procedures	An electronic or written logbook will be kept of all control device inspections and corrective actions. A data logger system will record the flow rate continuously and compute the average flow for each 12-hour block average.
Averaging period	There are no averaging periods associated with inspections. 12-hour block averages
IV. Reporting [15A NCAC 02Q .0508(f) and 40 CFR §64.9]	
The Permittee shall submit a summary report of the monitoring postmarked or delivered on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified. The report shall also include the following information, as applicable: iv. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; v. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and vi. A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.	

D. Biomass / Natural Gas-Fired Boiler (ES-B3) Multicyclone and Electrostatic Precipitator Controlling PM10:

I. Background	
Emission Unit	**Biomass / Natural Gas-Fired Boiler** Emission Source ID: ES-B3
Control Device	**Multicyclone** Control Device ID: CD-3 **Electrostatic precipitator (ESP)** Control Device ID: CD-4a
Applicable Regulations & Emission Limits	02D .0504: Particulates from Wood Burning Indirect Heat Exchangers • PM: 0.34 lb/MMBtu

Attachment 2
CAM Conditions for Boilers (ID Nos. ES-B2 and ES-B3)

	2D.0530: PSD; BACT Limitation PM: 0.10 lb/MMBtu
Is the unit a major source post-control?	No based on the BACT limit for filterable PM and emission factor for condensibile PM.
II. Monitoring Approach	
CAM Indicators	Multicyclone and electrostatic precipitator inspection/maintenance. ESP secondary power during normal operation of the boiler.
Measurement Approach/ Monitoring Frequency	Inspections and maintenance shall be performed on the multicyclone and ESP as recommended by the manufacturer, including at a minimum: monthly external visual inspections of the ductwork and collection units, and annual internal inspection of the multicyclone and ESP for structural integrity. ESP secondary power will be monitored continuously during normal operation of the boiler, with a minimum of 4 data points (every 15 minutes) recorded each hour. The average total secondary power in watts will be determined and recorded for each hour and used to determine as 12-hour block average.
Indicator Range	Abnormal condition of the multicyclone or ESP will trigger corrective action, which could include repair of components. An excursion is defined as a 12-hour block average for total secondary power of less than the minimum established during the most recent stack test. An excursion will trigger corrective action.
Justification/ Rationale	Condition of the control devices and the ESP secondary power are indicative of acceptable performance of the control equipment. Taking action when a 12-hour block average of secondary power measurement is less than the minimum level established during the most recent stack test will the plant to remain in compliance.
III. Performance Criteria	
Data Representativeness	Personnel will perform visual inspections of the equipment. Monitors are installed and maintained in a manner that provides representative data.
QA/QC Practices and Criteria	Personnel performing inspections/maintenance will be properly trained. Monitors will be calibrated and maintained per manufacturer's recommendations.
Data Collection Procedures	An electronic or written logbook will be kept of all control device inspections and corrective actions. A data logger system will record the ESP total secondary power continuously and compute the 12-hour block average.
Averaging period	There are no averaging periods associated with inspections. ESP secondary power measurements are based on 12-hour block averages

IV.	**Reporting** [15A NCAC 02Q .0508(f) and 40 CFR §64.9]

The Permittee shall submit a summary report of the monitoring postmarked or delivered on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified. The report shall also include the following information, as applicable:

i. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;

ii. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and

iii. A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

Attachment 3

Revised Case-by Case MACT Condition for Boilers (ID Nos. ES-B1, ES-B2, and ES-B3)

Section 2.1.E

9. 15A NCAC 02D .1109: Case-by-Case MACT

a. The initial compliance date for these emission limitations and associated monitoring, recordkeeping, and reporting requirements is **November 1, 2013**. These conditions need not be included on the annual compliance certification until after the initial compliance date. These limits apply except for periods of startup, shutdown, and malfunction. The Permittee shall follow the procedures in 15A NCAC 02D .0535 for any excess emissions that occur during periods of startup, shutdown, or malfunction.

b. The Permittee shall comply with this CAA §112(j) standard until **May 19, 2019**. The initial compliance date for the applicable CAA §112(d) standard for ''National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters" is **May 20, 2019.**

c. Emissions from these sources **(ID Nos. ES-B2 and ES-B3)** shall not exceed the emissions limitations listed below as a result of firing biomass:
   i. Filterable PM:
      (A) **ID No. ES-B2:** 0.27 lbs/mmBtu
      (B) **ID No. ES-B3:** 0.18 lbs/mmBtu
   ii. Mercury (Hg): 5.0e-06 lbs/mmBtu
   iii. Hydrogen Chloride-equivalent (HCl): 0.02 lbs/mmBtu
   iv. Carbon Monoxide (CO): 2,718 ppmvd, corrected to 7% oxygen

d. Emissions from these sources **(ID Nos. ES-B1, ES-B2, and ES-B3)** shall not exceed the emission limitations listed below as a result of firing natural gas:
   i. Work practices best combustion

Compliance Testing [15A NCAC 02Q .0508(f)]

e. **ID Nos. ES-B2:** To demonstrate compliance with the standards provided in Section 2.1 E.9.c. above, the Permittee shall conduct compliance tests for each listed pollutant. The Permittee may choose either of the following methods for the compliance tests:
   i. Periodic Stack Testing. Stack testing shall be performed in accordance with General Condition JJ. Tests may not be conducted during periods of startup, shutdown, or malfunction. The Permittee conducted initial stack testing on November 19, 2014. The results of the stack test showed emissions of filterable PM and CO were less than or equal to 80 percent of the allowable limit in Section 2.1.E.9.c. Therefore, the test frequency shall be reduced to once every five years for these pollutants.
   ii. Periodic Fuel Analysis. The Permittee has elected to use fuel analysis to demonstrate compliance with the mercury and HCl standards. Fuel analyses shall be conducted annually. Following the initial fuel analysis, each analysis shall be conducted between 11 and 13 months after the previous analysis. If a fuel analysis shows a potential exceedance of an emission limitation in Section 2.1 E.9.c., the Permittee shall conduct a follow-up stack test of the affected source within 90 days. If the follow-up stack test shows an exceedance of the limit, the Permittee shall be deemed in non-compliance with 15A NCAC 02D .1109.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if the required compliance tests are not conducted, or if the results of compliance test exceed a limit in Section 2.1 E.9.c. above.

f. **ID Nos. ES-B3:** To demonstrate compliance with the standards provided in Section 2.1 E.9.c. above, the Permittee shall conduct compliance tests for each listed pollutant. The Permittee may choose either of the following methods for the compliance tests:
   i. Initial & Periodic Stack Testing. Stack testing shall be performed in accordance with General Condition JJ. Stack tests shall be used to establish minimum secondary power for the associated electrostatic precipitator **(ID No. CD-4a)**. Tests may not be conducted during periods of startup, shutdown, or malfunction. Following the initial compliance test, the Permittee shall test the boiler annually. Each stack test shall be conducted between 11 and 13 months after the previous stack test. However, if a stack test shows that the emission rate of any pollutant is less than or equal to 80 percent of the allowable limit, the stack test frequency shall be reduced to once every five years for that pollutant. The initial compliance test shall be conducted within 180 days of the initial startup of the boiler **(ID No. ES-B3)** with associated multicyclone **(ID No. CD-3)** and electrostatic precipitator **(ID No. CD-4a**).
   ii. Periodic Fuel Analysis. The Permittee has elected to use fuel analysis to demonstrate compliance with the mercury and HCl standards. Fuel analyses shall be conducted annually. Following the initial fuel analysis,

each analysis shall be conducted between 11 and 13 months after the previous analysis. If a fuel analysis shows a potential exceedance of an emission limitation in Section 2.1 E.9.c., the Permittee shall conduct a follow-up stack test of the affected source within 90 days. If the follow-up stack test shows an exceedance of the limit, the Permittee shall be deemed in non-compliance with 15A NCAC 02D .1109.

The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if the required compliance tests are not conducted, or if the results of compliance test exceed a limit in Section 2.1 E.9.c. above.

Work Practice Standards [15A NCAC 02Q .0508(f)]

g. For each boiler equipped with a gas burner, the Permittee shall perform an annual boiler inspection and maintenance as recommended by the manufacturer, or as a minimum, the inspection and maintenance requirement shall include the following:
   i. Inspect the burner, and clean or replace any components of the burner as necessary except for while firing solid fuel;
   ii. Inspect the flame pattern and make any adjustments to the burner necessary to optimize the flame pattern; and,
   iii. Inspect the system controlling the air-to-fuel ratio and ensure that it is correctly calibrated and functioning properly.

   The Permittee shall conduct at least one tune-up per calendar year to demonstrate compliance with this requirement. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if the affected boilers are not inspected and maintained as required above.

h. The results of any required annual burner inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
   i. The date of each recorded action;
   ii. The results of each inspection; and,
   iii. The results of any maintenance performed on the boilers.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if these records are not maintained.

i. The Permittee shall conduct annual inspections of the multicyclones **(ID Nos. CD-1 and CD-3)** and record the results of inspections as provided in Section 2.1 E.3.c. and d. of this permit. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if these inspections are not performed or the required records are not created and maintained.

Operating Standards & Continuous Monitoring Requirements [15A NCAC 02Q .0508(f)]

j. The water injection rate for the fan impingement type scrubber **(ID No. CD-2)** shall be maintained at 104.4 gallons per minute on a 12-hour block average. This operating limit was established during the performance test on November 9, 2014.

k. The water injection rate for the venturi scrubber **(ID No. CD-4)*** shall be maintained at 953 gallons per minute on a 12-hour block average. This operating limit was established during the performance test on April 2, 2014.

l. The secondary power of the electrostatic precipitator **(ID No. CD-4a)** shall be maintained at or above the operating limit established during the performance test on a 12-hour block average. Upon DAQ's approval of the operating limits for the electrostatic precipitator **(ID No. CD-4a)**, the Permittee shall attach the approval memorandum to this permit and shall maintain the parameters within the associated operating limits contained therein.

m. The Permittee shall install, calibrate, and maintain a liquid injection rate monitoring device at each affected scrubber **(ID No. CD-2 and CD-4*)** in accordance with manufacturer's specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately. The monitor shall be equipped with a continuous recorder. The Permittee shall be deemed in non-compliance with 15A NCAC 02D .1109 if the required monitoring device is not installed and operated as required above.

n. The Permittee shall install, calibrate, and maintain secondary power monitoring device at the electrostatic precipitator **(ID No. CD-4a)** in accordance with manufacturer's specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately. The monitor shall be equipped with a continuous recorder. The Permittee shall be deemed in non-compliance with 15A NCAC 02D .1109 if the required monitoring device is not installed and operated as required above.

o. The Permittee shall maintain records of the continuous and 12-hour block average liquid injection rates for the fan impingement type scrubber **(ID No. CD-2)** and the venturi scrubber **(ID No. CD-4)*** and the secondary power levels for the electrostatic precipitator **(ID No. CD-4a)**. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1109 if the above records are not created and maintained, or if any 12-hour block average is not within the allowable limit, as provided in Sections 2.1 E.9.j. through l of this permit.

Reporting [15A NCAC 02Q .0508(f)]

p. Notification of Compliance Status. The Permittee must submit a Notification of Compliance Status that meets the requirements of 40 CFR 63.9(h)(2)(ii) before the close of business on the 60th day following the completion of the final required performance test and/or other initial compliance demonstration, for boiler **(ID No. ES-B3)** with associated multicyclone **(ID No. CD-3)** and electrostatic precipitator **(ID No. CD-4a).** The Notification of Compliance Status report must contain the following information, as applicable:
   i. A description of the affected source(s) including identification of which subcategory the source is in, the capacity of the source, a description of the add-on controls used on the source description of the fuel(s) burned, and justification for the fuel(s) burned during the performance test.
   ii. Summary of the results of all performance tests and calculations conducted to demonstrate initial compliance.
   iii. A certification signed by the Responsible Official that the facility has met all applicable emission limits and work practice standards.

q. Semiannual Summary Report. The Permittee shall submit a summary report postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The first summary report shall be required on January 30, 2014. The report shall include the following:
   i. Company name and address;
   ii. Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report;
   iii. Date of report and beginning and ending dates of the reporting period;
   iv. A summary of the results of the annual performance tests;
   v. Signed statement indicating that no new types of fuel were fired in the affected sources.

The boiler **(ID No. ES-B3) shall be controlled by the venturi scrubber **(ID No. CD-4)** until initial startup of the electrostatic precipitator **(ID No. CD-4a)**.*